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07/798,869 11/25/91 NILSSEN

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EXAMINER

SHINGLETON, M

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CAESAR DR.  
BARRINGTON, IL 60010

ART UNIT

PAPER NUMBER

10

2502

DATE MAILED:

06/03/92

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☒ Responsive to communication filed on 2-28-92 ☒ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- ☒ Notice of References Cited by Examiner, PTO-892.
- ☐ Notice re Patent Drawing, PTO-948.
- ☐ Notice of Art Cited by Applicant, PTO-1449.
- ☐ Notice of Informal Patent Application, Form PTO-152.
- ☐ Information on How to Effect Drawing Changes, PTO-1474.
- ☐

Part II SUMMARY OF ACTION

- ☒ Claims 25-46 are pending in the application.

Of the above, claims are withdrawn from consideration.

- ☒ Claims 1-24 have been cancelled.

- ☐ Claims are allowed.

- ☒ Claims 25-46 are rejected.

- ☐ Claims are objected to.

- ☐ Claims are subject to restriction or election requirement.

- ☐ This application has been filed with Informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

- ☐ Formal drawings are required in response to this Office action.

- ☐ The corrected or substitute drawings have been received on Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).

- ☐ The proposed additional or substitute sheet(s) of drawings, filed on has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).

- ☐ The proposed drawing correction, filed on has been ☐ approved. ☐ disapproved (see explanation).

- ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received  
☐ been filed in parent application, serial no. ; filed on

- ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

- ☐ Other

EXAMINER'S ACTION

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to under 35 U.S.C. 112, first paragraph, as the specification, as originally filed, does not provide support for the invention as is now claimed.

What is now claimed is specific ranges like "the second brief span of time is at least 10% longer than the duration of each half-period" and "the first brief span of time is shorter than 90% of the duration of each half-period". However, the original disclosure is not so limited. On page 1 and the paragraph bridging pages 7 and 8, the original disclosure sets forth that "[t]he ON-time (or forward conduction period) of each of the inverter's two transistors is shorter than half the period of the high frequency voltage...". The original disclosure also makes reference to Figure 3. Both of these disclosures fail to recite or even suggest the specific ranges as is now claimed. The specification fails to provide support for the invention that includes a set of DC terminals in which a rectifier circuit provides the DC voltage to these terminals which are "characterized by including a center-tap". A center-tap of what? Where is this center-tap described in the original

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specification?

Claims 26,27,29,31,35,39,41,45 are rejected under 35 U.S.C. 112, first paragraph, for the reasons set forth in the objection to the specification.

Claims 25-42, 45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 25 is indefinite for the limitations setting forth that "each half period being of substantially equal duration" just can't be correct. The first and second half-periods make up the fundamental period and the fact that two halves make a whole is very well known. By definition a half is equal to 1/2 of the total. Thus, the two halves must be of equal duration with respect to each other, otherwise they just can't have the name of "half". The use of this in any other way would be repugnant to the usual meaning of the word. The two halves just can't be of substantially equal duration for this would go against the meaning of the term half.

Claim 25 is also functional in nature. The functional language beginning with line 26 just does not have sufficient structure set forth in the claim so as to warrant the presence of the functional language in the claim. The claim does set forth a first transistor and that it conducts

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"current" in response to a control voltage that is provided at a control input. However, no means is set forth for supplying that control voltage and thus no means is set forth that can enable the function of causing the first transistor to be "operative" to allow current to flow, i.e. the transistor becomes conductive.

Claim 34 is unclear for it first recites that the high frequency output current has a fundamental period and then refers to "each fundamental period". Is there more than one fundamental period? The claims also recite a limitation that is similar to a limitation in claim 25 and that is "each half-period being substantially of equal duration". If two half periods make a whole, they can not be substantially equal to a half-period they must be equal to the half-period. Two halves makes a whole and not substantially a whole, for substantially a whole would might still fall short even by a small insignificant amount and this still would not be the whole. In other words a half is equal to  $1/2$  times the value of the whole by definition, not substantially equal to  $1/2$  times the value of the whole.

Claim 34 is indefinite for it does not positively recite the existence of means for the supplying of the recited first and second control voltages supplied to the first and second

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control inputs. In other words the functional language of providing these voltages is not supported by sufficient structure to warrant the presence of this in the claim.

Claim 28 is indefinite for similar reasons claim 34 is indefinite involving functional language.

Claim 40 is also indefinite for it does not positively recite that the control signal is indeed supplied to the transistor. It only recites that the transistor is such that it can receive a control signal. The functional language of lines 14-20 is unsupported by the structure set forth in the claim. This is so in much the same way claim 25 is indefinite due to similar functional problems. First, the claim does not positively recite that a control signal is indeed supplied and second, no means is set forth that provides the necessary recitation of structure that provides for this control signal. How can the control signal exceed a value if in fact there is no means that would enable this signal to exceed this value or even to produce this control signal at all? The claim should properly recite a means for supplying a control signal in which such means includes further means that enables the control signal to have a variable voltage level or voltage magnitude.

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Claim 41 is indefinite for the object of the "center-tap" is not set forth thereby making the scope of the claim indefinite. In other words a "center-tap" of what?

Claims whose base claims indicated in the text of this rejection incorporate the indefiniteness of these base claims and are therefore themselves indefinite.

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between

the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 25, 28, 30, 32, 33, 34, 36, 37, 38, 40, 41, 42, 43, 44, 46 are rejected under 35 U.S.C. 103 as being unpatentable over Dale et al. in view of Wotoweic of record and Stolz.

Dale et al. of record discloses all aspects of the invention as set forth by the above claims, except for the use of the screw-in inverter housing itself to support the gas discharge lamp and is silent on the fact that the specific semiconductor inverter arrangement involves the

switching of the transistor(s) on, that compose the inverter, for a period that is "substantially shorter than the duration of each half-period".

Wotowiec discloses a screw-in ballast arrangement also using a "circline" type lamp in which the housing of the ballast actually forms the supporting structure for the lamp itself. One clear advantage of the structure of Wotowiec is the integration into one easy to change unit the inverter and lamp. Another is the inherent safety aspects of such a design. This is so because the isolation of the output terminals of the lamp is possible.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to integrate into one unit the "circline" lamp and the screw-in ballast housing so as to obtain a structure that "seals" the lamp terminals and thereby reducing the risk of shock to a person coming in contact with the lamp fixture, among many other reasons clearly taught by Wotowiec.

Stolz disclose well known semiconductor inverter ballast arrangements for the powering and the dimming of gas discharge lamps. This circuit is very similar to the semiconductor inverter ballast of Dale et al. and are truly functionally equivalent to that of Dale et al.. The circuit of Stolz specifically recites the feature of the instant invention which includes the control voltage applied to one or more of the switching transistor(s) that allows this/these switching transistor(s) to conduct current for a brief span of time that is substantially shorter than that of a half-period.

Thus, given that the inverter circuit of Stolz is functionally equivalent to that of Dale et al. the incorporation of such an inverter circuit in Dale et al. would have been obvious to a person having ordinary skill in the art at the time the invention was made. This truly results in the placement of a specific inverter ballast in a housing arrangement that is already well known for the housing of inverter ballasts of this type. Also the selection of the inverter ballast used just happens to be one dictated by the situation one desires. If efficiency is desired one of ordinary skill would have found it obvious to use a inverter ballast whose efficiency is high. The same is true if one is concerned about power factor, cost, etc.. As one can clearly see numerous inverter ballasts would have been obvious replacements to that in Dale et al..

Claim 41 is rejected under 35 U.S.C. 103 as being unpatentable over Dale et al. in view of Wotowiec and Nilssen 4,279,011 ('011).

Dale et al. of record discloses all aspects of the invention as set forth by the above claims, except for the use of the screw-in inverter housing itself to support the gas discharge lamp and is silent on the fact that the specific semiconductor inverter arrangement involves the switching of the transistor(s) on, that compose the inverter, for a period that is "substantially shorter than the duration of each half-period".

Wotowiec discloses a screw-in ballast arrangement also using a "circline" type lamp in which the housing of the ballast actually forms the supporting structure for the lamp itself. One clear advantage of the structure of Wotowiec is the integration into one easy to change unit the inverter and lamp. Another is the inherent safety aspects of such a



design. This is so because the isolation of the output terminals of the lamp is possible.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to integrate into one unit the "circline" lamp and the screw-in ballast housing so as to obtain a structure that "seals" the lamp terminals and thereby reducing the risk of shock to a person coming in contact with the lamp fixture, among many other reasons clearly taught by Wotowiec.

Nilssen '011 discloses a inverter circuit also commonly employed at the time the invention was made for use in powering gas discharge lamps that takes the form of a half-bridge arrangement. Here the node joining the two capacitors 222 and 223 forms a "center-tap".

It would have been obvious to one having ordinary skill in the art to replace the inverter arrangement of Dale et al. with that of Nilssen '011 given the functional equivalence of the two circuits.

Claims 41 and 42 are rejected under 35 U.S.C. 103 as being unpatentable over Dale et al. in view of Wotowiec, Gregory et al. and Canup.

Dale et al. of record discloses all aspects of the invention as set forth by the above claims, except for the use of the screw-in inverter housing itself to support the gas discharge lamp and is silent on the fact that the specific semiconductor inverter arrangement involves the switching of the transistor(s) on, that compose the inverter, for a period that is "substantially shorter than the duration of each half-period".

Wotowiec discloses a screw-in ballast arrangement also

using a "circline" type lamp in which the housing of the ballast actually forms the supporting structure for the lamp itself. One clear advantage of the structure of Wotowiec is the integration into one easy to change unit the inverter and lamp. Another is the inherent safety aspects of such a design. This is so because the isolation of the output terminals of the lamp is possible.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to integrate into one unit the "circline" lamp and the screw-in ballast housing so as to obtain a structure that "seals" the lamp terminals and thereby reducing the risk of shock to a person coming in contact with the lamp fixture, among many other reasons clearly taught by Wotowiec.

Canup discloses a push-pull inverter arrangement having a trapezoidal output waveshape output for "any desired load 23" (See column 3, line 19). The advantage of this type of inverter over others is that the transients are suppressed thereby premature failure in the switching transistors are prevented.

It would have been obvious to one having ordinary skill in the art to replace the inverter arrangement of Dale et al. with that of Canup given the functional equivalence of the two circuits, given that the inverter of Canup can power "any desired load" and given the teachings of Canup that transients can be suppressed resulting in longer switching transistor life.

As to the DC source having a set of DC output terminals being characterized by including a center-tap, Gregory discloses such an arrangement. Note the transformer T2 whose center-tap is included in the DC output terminals. This is just an alternative conventional type of DC power supply

circuit used to power inverters that then in turn power gas discharge lamps.

It would have been obvious to one having ordinary skill in the art to provide such DC power supply arrangement in that of Dale et al. and Canup in order to supply the proper DC potential needed to power a inverter that in turn powers a gas discharge lamp as taught by Gregory.

Claims 43, 44 and 46 are rejected under 35 U.S.C. 103 as being unpatentable over Dale et al. in view of Wotowiec and Canup.

Dale et al. of record discloses all aspects of the invention as set forth by the above claims, except for the use of the screw-in inverter housing itself to support the gas discharge lamp and is silent on the fact that the specific semiconductor inverter arrangement involves the switching of the transistor(s) on, that compose the inverter, for a period that is "substantially shorter than the duration of each half-period".

Wotowiec discloses a screw-in ballast arrangement also using a "circline" type lamp in which the housing of the ballast actually forms the supporting structure for the lamp itself. One clear advantage of the structure of Wotowiec is the integration into one easy to change unit the inverter and lamp. Another is the inherent safety aspects of such a design. This is so because the isolation of the output terminals of the lamp is possible.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to integrate into one unit the "circline" lamp and the screw-in ballast housing so as to obtain a structure that "seals" the

lamp terminals and thereby reducing the risk of shock to a person coming in contact with the lamp fixture, among many other reasons clearly taught by Wotowiec.

Canup discloses a push-pull inverter arrangement having a trapezoidal output waveshape output for "any desired load 23" (See column 3, line 19). The advantage of this type of inverter over others is that the transients are suppressed thereby premature failure in the switching transistors are prevented.

It would have been obvious to one having ordinary skill in the art to replace the inverter arrangement of Dale et al. with that of Canup given the functional equivalence of the two circuits, given that the inverter of Canup can power "any desired load" and given the teachings of Canup that transients can be suppressed resulting in longer switching transistor life.

Claim 41 in so far as understood is rejected under 35 U.S.C. 103 as being unpatentable over Dale et al. in view of Wotowiec and Gregory et al.

Dale et al. of record discloses all aspects of the invention as set forth by the above claims, except for the use of the screw-in inverter housing itself to support the gas discharge lamp and is silent on the fact that the specific semiconductor inverter arrangement involves the switching of the transistor(s) on, that compose the inverter, for a period that is "substantially shorter than the duration of each half-period".

Wotowiec discloses a screw-in ballast arrangement also using a "circline" type lamp in which the housing of the ballast actually forms the supporting structure for the lamp

itself. One clear advantage of the structure of Wotowiec is the integration into one easy to change unit the inverter and lamp. Another is the inherent safety aspects of such a design. This is so because the isolation of the output terminals of the lamp is possible.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to integrate into one unit the "circline" lamp and the screw-in ballast housing so as to obtain a structure that "seals" the lamp terminals and thereby reducing the risk of shock to a person coming in contact with the lamp fixture, among many other reasons clearly taught by Wotowiec.

With respect to the limitation of a rectifier circuit having a set of DC terminals that is characterized by including a center tap in so far as understood Gregory et al. shows such a structure. Note that transformer "T2" connected to the AC source and the center-tap "24" being apart of the set of DC output terminals. Also note that this forms the DC input to the inverter means that powers a gas discharge lamp.

It would have been obvious to one having ordinary skill in the art to replace the rectifier arrangement of Dale et al. with that of Gregory et al. given the functional equivalence of the circuits.

Claim 42 is rejected under 35 U.S.C. 103 as being unpatentable over Dale et al., Wotowiec and Gregory et al. as applied to claim 41 above, and further in view of Nilssen 4,184,128 ('128).

The Dale et al. reference is silent on the use of a trapezoidal waveshape producing inverter arrangement for powering a gas discharge lamp.

Nilssen '128 discloses a inverter assembly for the

powering of a gas discharge lamp that produces a trapezoidal waveshape at a pair of output terminals.

It would have been obvious to one having ordinary skill in the art to replace the inverter arrangement of Dale et al. with that of Nilssen '128 given the functional equivalence of the two inverters for powering a gas discharge lamp and namely fluorescent lamps.

Claims 43, 44 and 46 are rejected under 35 U.S.C. 103 as being unpatentable over Dale et al. in view of Wotowiec and Nilssen 4,184,128 ('128).

Dale et al. of record discloses all aspects of the invention as set forth by the above claims, except for the use of the screw-in inverter housing itself to support the gas discharge lamp and is silent on the fact that the specific semiconductor inverter arrangement involves the switching of the transistor(s) on, that compose the inverter, for a period that is "substantially shorter than the duration of each half-period".

Wotowiec discloses a screw-in ballast arrangement also using a "circline" type lamp in which the housing of the ballast actually forms the supporting structure for the lamp itself. One clear advantage of the structure of Wotowiec is the integration into one easy to change unit the inverter and lamp. Another is the inherent safety aspects of such a design. This is so because the isolation of the output terminals of the lamp is possible.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to integrate into one unit the "circline" lamp and the screw-in ballast housing so as to obtain a structure that "seals" the

lamp terminals and thereby reducing the risk of shock to a person coming in contact with the lamp fixture, among many other reasons clearly taught by Wotowiec.

Nilssen '128 discloses an inverter assembly for the powering of a gas discharge lamp. This inverter assembly includes the recited trapezoidal waveshape applied across the inverter output terminals and the conduction of the transistor is shown as being turned on for a time period distinctly shorter than half the duration of the fundamental period (Note Figure 2).

It would have been obvious to one having ordinary skill in the art to use the inverter arrangement of Nilssen '128 in place of the inverter assembly of Dale et al. given the functional equivalence of the two circuits for powering gas discharge lamps.

Claims 25-40 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-21 of U.S. Patent No. 4,857,806. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims only differ by a matter of minor wording. Stated in another way all the limitations presented is also set forth in the claims of U.S. Patent 4,857,806, but said in a slightly different way. For example claim 25 of the instant application sets forth that the brief span of time the current is permitted to flow is shorter than the duration of a half period. This is presented in claim 17 of U.S. Patent 4,857,806 as being shorter than one quarter of the cycle period. Clearly, one quarter is shorter than half the period. It is noted that claims of the U.S. Patent 4,857,806 includes items that are not recited in the instant claims of

the instant application and thus the issue of domination applies.

The obviousness-type double patenting rejection is a judicially established doctrine based upon public policy and is primarily intended to prevent prolongation of the patent term by prohibiting claims in a second patent not patentably distinct from claims in a first patent. In re Voges, 164 USPQ 619 (CCPA 1970). A timely filed terminal disclaimer in compliance with 37 C.F.R. 1.321(b) would overcome an actual or provisional rejection on this ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 C.F.R. 1.78(d).

Applicant's arguments filed 3-28-92 have been fully considered but they are not deemed to be persuasive.

In regards to applicant's remarks that the claimed specific ranges are in fact supported in the specification, the examiner respectfully disagrees. Note In re Barker, 559 F.2d 588 194 USPQ 470 (CCPA 1977).

The examiner respectfully disagrees with applicant's remarks concerning the 35 U.S.C. 112 second paragraph rejections. Applicant repeatedly states that "Applicant has no idea what Examiner refers to or what his problem is". The examiner contends that the rejection under 35 U.S.C. 112 is clearly set forth. For example the first problem is the repugnant terminology of half. A half is a specific term having set definition. Two halves make a whole and a half is specifically 1/2 of a whole thus two halves of the same whole must be equal. As to applicant's remarks concerning "what his



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problem is" the examiner is mystified as to what point the applicant is trying to make. As to applicant's remarks that the functional language is supported by sufficient (inherent) structure, the examiner respectfully disagrees here also. If this line of reasoning were to be correct then "a woolen cloth having a tendency to wear rough rather than smooth" would also have inherently have means to warrant the presence of the functional language of "wear rough" which can not be the case (See MPEP 706.03(c)). There is just no structure inherent or specifically set forth to warrant the presence of the functional language in the instant claims.

Applicant amends the specification to effectively at this late date to claim continuing status in a series of applications including this one back to 1978. In regards to the Stolz reference, clearly the Stolz reference applies since clearly applicant is not entitled to the benefit of the 05/973,741 application due to the fact that the claims in the present application are directed toward matter not present in the 05/973,741 application (See MPEP 201.11).

Applicant gives no remarks concerning the double patenting issues and has not filed a terminal disclaimer, therefore the double patenting rejection is still in effect.

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THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R.

1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Shingleton whose telephone number is (703) 308-4903. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

*mc*  
Shingleton/mbs  
January 23, 1992

*Eugene R. Laroche*  
EUGENE R. LAROCHE  
SUPERVISORY PATENT EXAMINER  
GROUP ART UNIT 252